

# What is a PLSS? (Like a space backpack)

Hi! Imagine an astronaut wearing a special backpack that keeps them alive in space. That backpack is called a PLSS. PLSS stands for Primary (or Portable or Personal) Life Support System. It helps the astronaut breathe, stay the right temperature, talk to others, and more.

## Think of it like this:

- The astronaut's suit is like a house.
- The PLSS is like the machines in the house that give fresh air, heat or cool the rooms, and keep everything working.

## What the PLSS does — step by step

1. **Gives fresh air:** The PLSS has oxygen in it so the astronaut can breathe. It also takes away the old air the astronaut breathes out.
2. **Takes out carbon dioxide:** When we breathe out, we make carbon dioxide (CO<sub>2</sub>). The PLSS removes CO<sub>2</sub> so the astronaut's air stays safe to breathe.
3. **Keeps the right temperature:** Space can be very hot or very cold. The PLSS helps cool or warm the astronaut so they don't get too hot or too cold.
4. **Supplies water:** The PLSS helps the astronaut drink water through a little straw inside the helmet so they don't get thirsty.
5. **Radio and microphones:** The PLSS has a radio so the astronaut can talk to teammates and the spaceship. It's like a walkie-talkie inside the backpack.
6. **Power (battery):** The PLSS has batteries that run all the systems—air, cooling, and radio—like a toy runs on batteries.
7. **Handles waste safely:** If the astronaut needs to pee, the suit and PLSS help store it safely until they return to the spacecraft.
8. **Monitors the astronaut:** The PLSS has tools that check if everything is working and tells the astronaut or mission control if something is wrong.

## Why it is important

Space doesn't have air, and it can be very hot or very cold. Without the PLSS, an astronaut couldn't breathe or would get too cold or too hot. The PLSS is like a tiny life-support house on your back—super important!

## Quick safety rules (easy to remember)

- Don't take off your helmet in space—no air outside!
- If an alarm sounds, tell the team right away—PLSSs have alarms.
- Astronauts practice a lot before going to space so they know how to use their PLSS.

## Fun fact

On the Moon, astronauts wore a PLSS on their backs during moonwalks. It looked like a big backpack and helped them explore safely.

Would you like a drawing idea to show what a PLSS looks like? Draw an astronaut, then add a big

rectangle backpack with a straw going to the helmet, a little antenna for the radio, and buttons that show the suit is working!